a12 end

layer is formed so as to contain the second diffusion layer and side walls are formed on the side walls of the opening. A fourth impurity diffusion layer in the third impurity diffusion layer is formed in the opening surrounded by the side walls.

IN THE CLAIMS:

Please cancel claims 1 to 6 without prejudice or disclaimer.

Please retain claims 7-8, without change, amend claim 9 and add claims 10-15. Claims 7-15 are presented here for the convenience of the Examiner.

7. (unamended) A method of fabricating a bipolar transistor comprising the steps of:

forming on a semiconducting substrate a first insulating film having a pattern in which the surface of the semiconducting substrate is partially exposed from said first insulating film;

sequentially forming a first conductive film and a second insulating film over the surface of said

semiconducting substrate formed with said first insulating film, and then forming an opening portion so as to expose the surface of said semiconducting substrate;

forming a third insulating film on said opening portion and said conductive film;

forming a first impurity diffusion layer having a first conducting type by applying ion implantation to said semiconducting substrate at a first energy through said third insulating film;

forming a second impurity diffusion layer having the first conducting type by applying ion implantation to said semiconduting substrate at a second energy;

forming a third impurity diffusion layer having the first conducting type in said semiconducting substrate connected to said first conductive layer;

forming side walls made of a fourth insulating layer on side walls of said opening portion of said semiconducting substrate in which said first, second and third impurity diffusion are formed;

forming a second conductive film in said opening portion so as to be connected to said first impurity diffusion layer; and

forming a fourth impurity diffusion layer having a second conducting type in said second impurity diffusion

layer by ion implantation applied through said second conductive layer.

8. (unamended) A method of fabricating a bipolar transistor according to claim 7, wherein said second impurity diffusion layer is formed by ion implantation at said second energy, and thereafter a fifth impurity diffusion layer is formed under said first impurity diffusion layer by ion implantation at a third energy.

Please amend claim 9 as follows:

A13

9. (once amended) A method of fabricating a bipolar transistor according to claim 7, wherein said first energy is lower than said second energy.

Please add the following new claims:

A14 Cont'd

10. (new) A method of fabricating a bipolar transistor comprising:

forming a graft base layer from a first impurity diffusion layer created by ion implantation, wherein said graft base layer is of a first conducting type and is formed in a semiconductor substrate;

a14 cont'd

forming a first conductive film on said semiconductor substrate which is connected to said graft base layer;

forming an opening in said first conductive film;

forming a link base layer from a second impurity diffusion layer created by ion implantation, wherein said link base layer is of the first conducting type, is formed in a portion of said semiconductor substrate which is exposed by said opening portion, and is connected to said graft base layer;

forming a base layer from a third impurity diffusion layer, wherein said base layer is of the first conducting type, is formed in said semiconductor substrate, and is formed to contain said link base layer;

forming side walls in said opening portion from an insulating film, said side walls defining a central aperture; and

forming an emitter from a fourth impurity diffusion layer created by ion implantation, wherein said emitter is of a second conducting type, is formed in a portion of said semiconducting substrate exposed by said central aperture, is surrounded by said side walls, and is formed in said base layer;

wherein said link base layer has a diffusion depth equal to or less than a diffusion depth of said emitter layer.

11. (new) A method as claimed in claim 10, further comprising forming a collector from a fifth impurity diffusion layer, wherein said collector is of the second conducting type, is formed directly under said link base layer and has a maximum impurity concentration with a diffusion depth deeper than a diffusion depth for a maximum impurity concentration of said base layer.

12. (new) A method as claimed in claim 11, further comprising reducing an impurity concentration in a lower portion of said base layer with said collector layer.

13. (new) A method as claimed in claim 11, further comprising forming said graft base layer with a gap therein aligned with the opening in the first conductive film.

14. (new) A method as claimed in claim 11, wherein said forming a link base layer further comprises forming